Develop, Debug, and Deploy Java Solutions on Mac OS X Tiger

Session 624

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Enterprise IT

Develop, Debug, and Deploy Java Solutions on Mac OS X Tiger

Ted Jucevic
DTS Engineer

http://developer.apple.com/wwdc2005/

Why Are You Here?

- J2SE 5.0
- Deployment strategies
- Debugging Tricks and Tips
- Intro to Java Development

Java on Mac OS X 10.4

- Distributed with Mac OS X 10.4
  - J2SE 1.4.2
  - J2SE 1.3.1
  - JAI
  - Java 3D
- Available as a download
  - J2SE 5.0 v 1.5

Xcode 2.0 and Java

Features Xcode offers to Java Developers

- Code Completion
- Native (JNI and dylib's) and Java in a single project
- Ant Integration
- Source Control Management
- Application packaging
- GDB and the Java Debugger
- Extensible via Shell Scripts

Development Tools Options

More Tools

- Borland's JBuilder
- IBM's Eclipse Project
- IDEA IntelliJ
- Oracle's JDeveloper
- Simplicity for Java
- Sun's NetBeans
- Tekadence Magik
- ZeroG's InstallAnywhere, Power Update

Eclipse 3.1

Full support for Mac OS X

- Open source project that is striving to create a universal tool platform
- Project includes
  - A client runtime
  - An extensible application platform
  - An extensible tool platform
  - Various IDEs, including JDT
- Download the Mac OS X version today!
  www.eclipse.org/downloads/

The Next Phase of Eclipse Development	Session 642 Friday 5:00PM

J2EE

Bundled with every Mac OS X Server

- JBoss
- Apache’s Tomcat and Axis
- Xcode templates

What Are We Going to Cover

- Deploying
  - Simple to Custom
- Debugging
  - Diagnosing and solving
- Developing
  - Xcode and Java

Java Deployment

Scott Kovatch

http://developer.apple.com/wwdc2005/

Deploying Java Applications

- Overview of what's available
- New features in Tiger
- How Java 5.0 affects your deployment options
- Transitions…

Your Choices

- Jar files (with a Main-Class in the manifest)
- Applets (signed or unsigned)
- Bundled applications
- Java Web Start

JNI Development on Mac OS X

Session 631
Thursday 3:30PM

What Do You Get With Tiger?

	If you are deploying a…	On Tiger, it will use…
	Command-line application	Java 1.4.2
	JAR-based applications	Java 1.4.2
	Java Applet Inside WebKit	Java 1.4.2
	JNLP-based application via Web Start	Specified JVM
	Bundled Application	Specified JVM

What About Java 5.0?

- From the Release Notes
  - "Java 1.4.2 remains the current JDK after installing J2SE 5.0 Release 1"
- What does 'current JDK' mean?
- How can I use Java 5.0 in my application?
  - Ask for it
- Customers can make Java 5.0 their preferred JVM

After Installing Java 5.0 Release 1...

	If you are deploying a…	On Tiger, it will use…
	Command-line application	Java 1.4.2
	JAR-based applications	User's preferred JVM
	Java Applet Inside WebKit	User's preferred JVM
	JNLP-based application via Web Start	Specified JVM
	Bundled Application	Specified JVM

Understanding Java Preferences

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What Just Happened?

- Important real estate
  - Java Application Runtime Settings
- Recognize trade-offs
  - ‘+’ is forward-looking
  - ‘*’ is making a guarantee
  - Specific versions have their place

Java Applets and Java Web Start

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Applets in Tiger

- Two versions available
  - 1.4.2_07
  - 1.5.0_02
- Improved integration with Keychain
- Use the APPLET tag for best compatibility
- How do you safely deploy an applet with 1.5?

Java Applets for Any Version of Java

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Java Web Start

- Java Web Start version 1.4.2_07
- Java 5.0 Release 1 installs Java Cache Viewer (aka Java Web Start 1.5)

What's New?

- Common pieces of plugin and Web Start combined
- Enterprise enhancements
- HTTPS client authentication
- Pack200 compression for JARs
- Import facility

Custom Launchers and Java 5.0

- If you use JNI_CreateJavaVM…
- Use setenv(”JAVA_JVM_VERSION”,“1.5”, 1) first to pick Java 5.0
- But before you do…ask yourself if this is really necessary

Transitions…

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Deployment Transitions

- It just works!*
- For best performance re-bundle your application
  - Do a clean build in Xcode, or…
  - Use Jar Bundler and repackage
- Rosetta applications cannot load Java VMs
- Java 1.4.2 and 1.5.0 only

Move to Java 1.4.2
Java 1.3.1
or Later Now

Temporary Problems

Things we expect to fix

- Support for C2 in bundled applications
- Support for .properties-based bundled applications

Mac Specific Java Debugging

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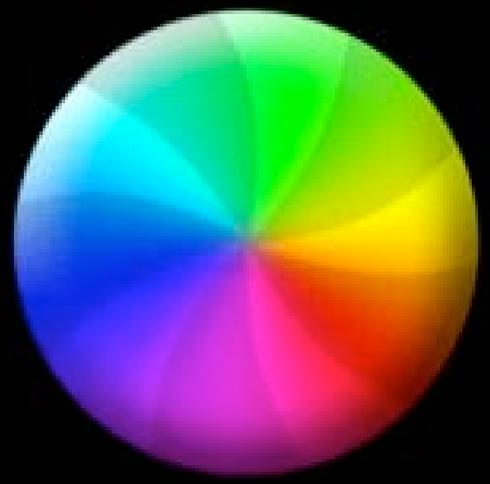
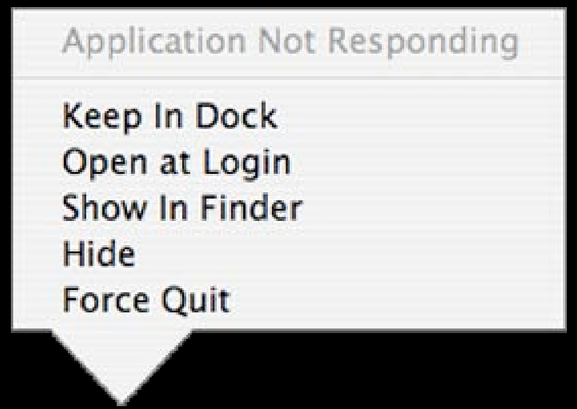
Trouble…

The application TestCase quit unexpectedly.
Mac OS X and other applications are not affected.
Click Reopen to open the application again. Click Report to see more details or send a report to Apple.
Close
Report...
Reopen




Application Not Responding
Keep In Dock
Open at Login
Show In Finder
Hide
Force Quit

What We'll Cover

- Cover 2 basic problems
- Cover 2 unix debugging tools
- Practice debugging
- Talk about crashes
- Quickly, more tools

Hangs and Crashes

- Why is my cursor spinning?
- What do I do with crashlogs?
- Where do I look for clues?

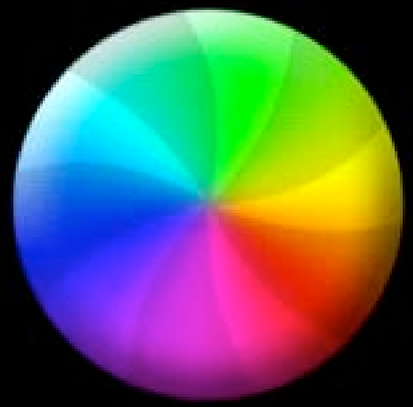
Looking at Threads

- Java
  - Do “kill -QUIT”
  - Look for AWTEventThread
- Native
  - Sample (or its friends)
  - Identify interesting threads

Hunting for “kill -QUIT” output

If you are in		Then look at
	Application	Console.app
	Applet	java console
	IDE (Xcode)	run log
	terminal	terminal

While You Wait…



- Disk Image: Develop_Debug_and DeployJava…Tiger (624)
- BlockedEventQueue.dmg

Demo/Hands-On

“Tread Lightly on the Event Queue”

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What Do I Do With This Crashlog?

- Get collect relevant information
  - Try and make sure that it's not a bug in your code (if you don't use JNI, you're done)
  - Native info: ~/Library/Logs/CrashReporter
  - Java info: ~/Library/Logs/Java/JavaNativeCrash_pidXXX
- Use Bug Reporter
  - Steps to reproduce are key
  - If it's not in a filed bug, we don't know about it
- Push the "Send to Apple" button!
- Automate

Other Important Tools

- Java debugger in your IDE of choice
- GDB
- Shark
- JUnit

GDB

Native Debugger

- native code
- JNI
- dylibs

Shark

Java profiling

- Object allocation
- Method trace
- Time trace

Performance and Graphics Tuning Your Java Application

Session 632
Friday 9:00AM

Hands On

JUnit

Test-driven development

- Tests are integrated into development
- Works well with Xcode, Eclipse, IDEA, other IDEs
- Active community
- For more information on JUnit, go to junit.org
  - http://junit.org

Java Development

Ted Jucevic

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Java Development on Mac OS X

- Where things are
- What is different with J2SE 5.0
- Tour of Xcode from a Java perspective

Where Things Are on Mac OS X

- Standard command-line tools
  - java, javac, javah, rmic, jar, keytool
- Java Home
  - /Library/Java/Home
- Extension and JNI Directories
  - /Library/Java/Extensions
  - ~/Library/Java/Extensions
- Includes
  - /System/Library/Frameworks/JavaVM.framework/Headers

J2SE 5.0

Building J2SE 5.0 Sources in Xcode

- JAVA_COMPILER
- /System/Library/Frameworks/JavaVM.framework/Versions/1.5/Commands/javac

Xcode and Java Application Tour with J2SE 5.0

http://developer.apple.com/wwdc2005/

More Information

http://developer.apple.com/wwdc2005/

Documentation, Sample Code, and Other Resources

http://developer.apple.com/wwdc2005/

Related Sessions

Mobile Development with Xcode for J2ME Devices	Session 627 Thursday 10:30AM	 Hands On

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